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DEMOCRATIZING MENTAL HEALTH SUPPORT: ETHICAL AND ADAPTIVE MOBILE APPLICATIONS POWERED BY LARGE LANGUAGE MODELS

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI), particularly Large Language Models (LLMs), has opened new avenues for enhancing mental health support. Mobile applications powered by these models have the potential to democratize access to mental health services, providing scalable, accessible, and personalized interventions. This research explores the ethical and adaptive challenges of AI-driven mental health applications, with a focus on user engagement, satisfaction, and the impact of demographic factors. A mixed-methods approach, incorporating both qualitative and quantitative data, was used to examine user experiences, mental health outcomes, and ethical concerns. Survey data from over 500 participants revealed that 78% of users reported increased engagement with AI-based mental health apps, while 65% found them to be highly adaptable to individual needs. Notably, 55% of participants preferred AI-driven interventions over traditional therapy due to factors like convenience and accessibility. However, ethical concerns, particularly around data privacy and algorithmic bias, emerged as significant challenges, with 72% of users expressing apprehensions regarding the security of personal data. Furthermore, demographic factors such as age, geographical location, and socio-economic status were found to influence the effectiveness and satisfaction of these applications. The study concludes that while AI-powered mental health applications hold great promise for expanding access to care, addressing ethical concerns and tailoring solutions to diverse user needs is crucial for their widespread adoption and positive impact on mental health outcomes.

KEYWORDS: *AI-powered mental health applications, Large Language Models, ethical considerations, adaptive interventions, mental health support, user engagement, data privacy, algorithmic bias, mobile health apps, democratizing access to care, personalized mental health, demographic variability, AI ethics, mental health outcomes, accessibility.*

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